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STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF L.M.H. UTILITIES CORP. FOR AUTHORITY TO CHANGE ITS RATES, CHARGES, TARIFFS, RULES AND REGULATIONS.

CAUSE NO. 43431

PREFILED DIRECT TESTIMONY OF

CHRISTOPHER A. LIMCACO

On behalf of

L.M.H. UTILITIES CORP.

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CAUSE NO. 43431

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Christopher A. Limcaco. My business address is 1426 West 29th Street, Suite 206, Indianapolis, IN 46208.

2 Q. MR. LIMCACO, DO YOU HOLD ANY LICENSES WHICH ARE RELEVANT TO YOUR TESTIMONY HERE?

A. Yes. I am a licensed professional engineer registered in the States of Indiana, Illinois, and Kentucky.

3 Q. DO YOU ALSO HOLD ANY DEGREES OR HAVE YOU HAD ANY PROFESSIONAL EXPERIENCE WHICH IS RELEVANT TO YOUR TESTIMONY HERE?

A. Yes, I hold a B.S. Degree in Civil Engineering and an A.S. Degree in Building Construction Technology from Purdue University. Since 1992, I have been involved in the design, permitting, construction, and operation of wastewater collection and treatment facilities throughout the Midwest. These projects have run the gamut from large regional or municipal style facilities to small industrial facilities. Since 2001, I have also been involved with various business enterprises focused on developing, designing, constructing, and operating innovative wastewater treatment facilities. I have patented and have patents pending on an innovative wastewater to energy system called Algicity.

4 **Q. WHAT IS ALGICITY?**

A. Conventional wastewater treatment plants have traditionally been installed for a single purpose – cleaning wastewater to acceptable levels prior to discharge into the environment. Wastewater has historically been viewed as a waste product but I believe it has potential as a renewable energy resource. After visiting different types of wastewater treatment plants across the United States, I noticed something that was common in all of them – algae was always growing where the water was discharged back into the environment. The algae was growing at the wastewater plants due to the remaining nutrients in the water (the same reason for eutrophication of streams and lakes). I decided to incorporate algae into a wastewater treatment process and have since obtained three patents on the process. A significant advantage of using algae is the fact that algae produce oxygen and use CO2. This allowed a 50% reduction in the power requirements of the wastewater treatment process since solar energy was being used to pump oxygen into the wastewater instead of mechanical blowers. An additional aspect of using algae is its potential as a renewable energy source. The U.S. Department of Energy has determined that algae is capable of producing thousands of times the amounts of biodiesel as can be produced from terrestrial crops like soybeans. The algae also have a high heating value when combusted and can be used to generate electricity. The patent pending Algicity system uses algae to treat wastewater. The algae grown from the wastewater is harvested,

dried and burned in a combustion system to generate electricity. The CO2 emissions from the combustion system are recycled back into the wastewater to grow additional algae. By reinvesting the CO2 emissions, I believe a significant amount of energy can be produced from this wastewater process. I would also note that this process also has no greenhouse gas emissions since the emissions are continuously recycled back to the wastewater process.

5 Q. IN WHAT CAPACITY HAVE YOU BEEN RETAINED BY THE PETITIONER IN THIS PROCEEDING?

A. Following the Commission's order in Cause 43022, I was asked to assist in valuing Petitioner's current wastewater collection and treatment facilities. I was also asked to address the issue of whether the most recent addition to the wastewater treatment plant was both used and useful in meeting the needs of Petitioner's customers. Finally, the president asked me to assist the other consultants in this proceeding in working with the OUCC on various issues described in the Commission's Order of 43022.

6 Q. MR. LIMCACO, HAVE YOU BEEN ABLE TO ESTABLISH THAT PETITIONER'S PLANT IS BOTH USED AND USEFUL?

A. Yes, I have. I believe that the Petitioner needed to make the expansion because the Petitioner's plant was unable to handle additional loadings to the plant above the current demand and did not have adequate redundancy for the current demand. Specifically, the influent raw sewage pump station at any wastewater treatment facility must be designed to handle

peak hydraulic conditions as well as have backup pump capacity in the event of mechanical failure. L.M.H.'s raw sewage station had neither and caused sewage to backup in the sewer system. The old raw sewage screen was undersized and caused undesirable solids to pass to the main aeration system causing significant operational problems. The plant also had inadequate sludge handling capabilities. As a result, in order to properly process the sludge generated by the plant, a portion of the main wastewater treatment system had to be removed from process treatment to sludge treatment and therefore reduced the normal process flow capacity of the plant. The current average daily flow to the plant was 94% of the capacity of the plant and the peak daily flow to the plant was over the capacity of the plant. Therefore, the plant had no additional capacity for future growth and was unable to adequately handle peak flow conditions prior to the last plant expansion. In fact, IDEM will put a facility on sewer ban when the flows reach 90% of the design flow at which level L.M.H. had already exceeded.

Q. MR. LIMCACO, IS YOUR OPINION AS TO THE NEED FOR THE EXPANSION SUPPORTED BY ANY OTHER ENGINEERING EVALUATIONS?

A. Yes, it is. Prior to my involvement with L.M.H. Utilities, the company sought and obtained an evaluation from RNK Environmental, Inc., an engineering firm located in northern Kentucky. The evaluation by that engineering firm included its recommendation that L.M.H. begin the

process of adding additional capacity to bring the facility up to approximately 500,000 gallons per day of average design flow capacity.

8 Q. DID L.M.H. INITIATE IMPROVEMENTS TO ITS WASTEWATER TREATMENT PLANT IN ORDER TO INCREASE ITS FLOW AS RECOMMENDED BY R.N.K. ENVIRONMENTAL?

A. Yes, though I would note that the added capacity in fact brought the total average design flow capacity up to 480,000 gallons per day.

9 Q. WHY WAS THE WASTEWATER TREATMENT PLANT EXPANDED TO 480,000 GPD?

A. L.M.H. utilizes a Sequential Batch Reactor (SBR) wastewater treatment process which includes one main process tank divided into two sections. The process tank is rated at 240,000 gpd. The SBR process uses a timer controlled sequencing system and in order for the process to work, the tanks must be the same size for equal flow and loading distribution. Therefore, a duplicate tank arrangement was necessary to match the existing increasing the capacity of the main process to 480,000 gpd.

10 Q. MR. LIMCACO, YOU HAVE PREVIOUSLY INDICATED THAT YOU WERE ASKED TO PROVIDE A VALUE OF THE PETITIONER'S CURRENT PLANT. HAVE YOU DONE SO?

A. Yes.

11 Q. ISN'T IT TRUE THAT PETITIONER'S PLANT HAS BEEN CONSTRUCTED IN PHASES AT DIFFERENT TIMES?

A. Yes, that is true.

12 Q. HOW CAN YOU PROVIDE AN APPROPRIATE VALUE FOR PETITIONER'S PLANT IN LIGHT OF THE FACT THAT IT WAS CONSTRUCTED IN PHASES?

A. With knowledge of the actual elements of the facilities which have been constructed, and the year in which they were constructed, the value can be calculated for both current replacement costs, and through the Handy-Whitman Index calculated as of the time actually installed. Thereafter, you can depreciate both current replacement costs, as well as the Handy-Whitman costs. Finally, there are a number of ways in which your resulting numbers can be checked for reasonableness.

13 Q. HAVE YOU MADE THOSE CALCULATIONS AND CHECKED YOUR CONCLUSIONS FOR REASONABLENESS?

A. Yes, I have

14 Q. HAVE YOU PROVIDED THIS COMMISSION WITH EXHIBITS WHICH REFLECT THE VALUE OF REPLACEMENT COST NEW, THE ORIGINAL COST CALCULATED VIA THE HANDY-WHITMAN INDEX, AND THE COST CHECKS?

A. Yes, attached are the following Exhibits:

CAL-1. Table 1 – Current Replacement Cost (Replacement Cost New)

CAL-2. Table 2 – Original Cost (Handy-Whitman Original Cost)

CAL-3. Table 3 – WWTP Replacement Cost Using Current Low Bid Cost Information

CAL-4. Table 4 – Actual WWTP Construction Costs in Indiana

CAL-5. Table 5 – Summary of Treatment Plant Results

CAL-6. Figure 1 – New WWTP Construction Costs in Indiana

CAL-7. Figure 2 – WWTP Expansion Construction Costs in Indiana

15 Q. HAVE YOU ALSO RECOGNIZED DEPRECIATION IN THOSE VALUES?

A. Yes.

16 Q. PLEASE WALK US THROUGH THE CALCULATIONS THAT YOU HAVE MADE.

A. Utilizing available maps, records, specifications, reports, discussions with the Owner, and site visits, a detailed itemized components list of the Owners' existing wastewater facilities was developed and is summarized in Table 1 and Table 2. For aid in review, the list was divided into two sections. The first section included the collection system (ie. lift stations, gravity sewers, manholes, and force mains), and the second section included the wastewater treatment plant. Each Table includes a description of each item, size of each item, quantity of each item, and the date the item was constructed. For example, Line 1 in Table 1 and Table 2 shows that Lift Station #1 was a 2 horsepower pump station installed in 1989.

Due to the absence of reliable records reflecting actual construction costs for the facilities, estimates of the 2007 replacement cost for each component was made based on my experience and judgment. Continuing with the previous example, Lift Station #1 was estimated to have a 2007 replacement cost of $25,000 based on its size.

A typical design life for each component was assigned for the valuation. In the example, Lift Station #1 is estimated to have a design life of 25 years. The installation date and the design life of the items was then used to calculate the useful life remaining (as a percentage) for each item. In the example, Lift Station #1 was installed in 1989 and has a useful life of 25 years. Therefore, Lift Station #1 is 18 years old (2007 minus 1989) and has 7 years of useful life remaining (25 year design life minus 18 years old). In other words, Lift Station #1 has 28% (7 years/25 years) of its useful life remaining.

The first valuation method (Table 1) calculated the "Total Estimated Current Value" of each item by multiplying the useful life remaining by the 2007 replacement cost. In the example for Lift Station #1, the Total Estimated Current Value would be calculated as $25,000 x 0.28 = $7,000.

Finally, all of the items were summed to give a Total Estimated Current Value less depreciation for the collection system and treatment plant of $6,133,587 and $2,002,098 respectively.

The second valuation method (Table 2) used the Handy-Whitman index for the installed year and the Handy-Whitman index for 2007 (as a percentage) to calculate the original cost of each item. Continuing with the Lift Station #1 example, the Handy-Whitman index for the year that Lift Station #1 was installed (1989) was 296 and the Handy-Whitman index for year 2007 was 557. The Total Estimated Original Cost is calculated by multiplying the 2007 Replacement Cost by the ratio of the two Handy-Whitman indexes. For Lift Station #1 the Original Cost is $25,000 x (296/557) = $13,275 (rounded). Based on the useful life remaining for each item, the "Original Cost Net of Depreciation" was then calculated by multiplying the useful life remaining by the Original Cost. For Lift Station #1, the Original Cost Net of Depreciation is calculated as $13,275 x 0.28 = $3,717.

Finally, all of the items were summed, as was done for replacement cost less depreciation, to give a Total Original Cost Net of Depreciation for the collection system and treatment plant of $3,712,874 and $1,765,998 respectively.

17 Q. MR. LIMCACO, YOU INDICATED EARLIER THERE WERE WAYS TO CHECK THE REASONABLENESS OF THESE RESULTS. PLEASE DESCRIBE THE CHECKS OF REASONABLENESS THAT YOU MADE.

A. The construction costs for several wastewater treatment plant projects recently bid were compiled to develop a typical unit cost for wastewater treatment plants in Indiana (Table 4). The data was further broken down into new plant construction and plant expansions since those costs are significantly different for the two types. The unit costs for the new plant construction developed in Table 4 were then plotted on a graph (Figure 1) with flow capacity shown on the "X" axis versus cost per gallon shown on the "Y" axis. A standard regression analysis was performed to develop a best fit curve for the data. From this curve, the unit prices for L.M.H.'s new plants could be derived. For example, L.M.H.'s first wastewater treatment plant was a new 20,000 gpd or 0.02 million gallons per day (MGD) plant. Starting at 0.02 MGD on the "X" axis and going up to the line shown in red to the curve gives a cost per gallon of $25/gal. The same analysis that was performed on the new plants was performed for the plant expansions and is shown in Figure 2. For example, L.M.H.'s third plant expansion was a 0.2 MGD plant expansion shown by the red line which corresponds to an $8.60/gal unit cost. The resulting unit costs developed from Figures 1 and 2 were then used to calculate the 2007 replacement costs for each new plant and plant expansion as shown in

Table 3. Using the previous 20,000 gpd example, the 2007 replacement cost is calculated as 20,000 gpd x $25/gal = $500,000. Likewise, the 2007 replacement cost for the 0.2 MGD plant expansion in the previous example would be 200,000 gpd x $8.60/gal = $1,720,000. The "Total Estimated Current Value" of each plant expansion was calculated in the same manner as Table 1 and Table 2 discussed previously by multiplying the useful life remaining by the 2007 replacement cost. In the example for the 20,000 gpd plant, the Total Estimated Current Value would be calculated as $500,000 x 0 = $0. In the example for the 200,000 gpd plant expansion, the Total Estimated Current Value would be calculated as $1,720,000 x 0.35 = $602,000. Finally, all of the items were summed to give a Total Estimated Current Value of the treatment plant of $2,267,700.

18 Q. MR. LIMCACO, A NUMBER OF THE ENTITIES THAT YOU REFERENCE ABOVE (TABLE 4) APPEAR TO BE MUNICIPAL ENTITIES. DO YOU KNOW WHETHER OR NOT THOSE MUNICIPAL ENTITIES BID THOSE PROJECTS?

A. All of the entities were municipalities or political subdivisions of the state. Thus, all of the projects listed were publically bid. In each case, the project was given to the lowest responsible and responsive bidder pursuant to Indiana state statute. I obtained the bid tabulations for each project and used the awarded bid numbers in my check.

19 Q. MR. LIMCACO, DOES THE CHECK THAT YOU MADE USING ACTUAL BIDS SUPPORT THE VALUE THAT YOU ARE RECOMMENDING FOR THE L.M.H. PLANT?

A. Yes, it does. Table 5 is a summary of the treatment plant value developed from the three different methods. The Total Estimated Current Value (less depreciation) or Original Cost Net of Depreciation for methods 1 and 2 WERE $2,002,098 and $1,765,998, respectively. The cost derived from the actual construction cost data less depreciation (Method 3) $2,267,600, was close but higher than the two detailed cost methods. This indicates that we were both conservative and accurate in our original detailed cost estimates. In addition, the bid tabulation costs do not include soft construction costs such as design, legal, and permitting which L.M.H. incurred on each plant expansion. Soft construction costs are typically 20-25% of the construction costs on projects of similar size and scope as the L.M.H. projects. Had these soft costs been capitalized as part of the value of the plant, the value described here would have been higher.

20 Q. WHAT IS YOUR OPINION OF THE VALUE OF PETITIONER'S USED AND USEFUL PLANT IN SERVICE?

A. Without considering the soft costs incurred, I believe the value of L.M.H.'s plant in service is between $5,538,873 and $8,195,685.

21 Q. YOU MENTIONED EARLIER THAT YOU WERE ASKED TO WORK WITH THE OUCC. WOULD YOU DESCRIBE THAT WORK.

A. I met with the OUCC staff, including its engineers, accountants, and financial analysts, to discuss how I had analyzed Petitioner's existing plant. I explained each calculation I made and provided various information to the OUCC. I described the various checks for reasonableness I made. I answered a number of questions and posed a number of questions to the OUCC about alternative approaches.

22 Q. DO YOU BELIEVE THIS COLLABORATIVE APPROACH WAS HELPFUL?

A. Yes, I do. By exchanging information with the OUCC and considering various issues, I was able to refine my opinion. The result I believe is a reasonable fair value allocated to Petitioner's plant in service, currently used and useful, as well as necessary for service to Petitioner's customers.

23 Q. DOES THIS CONCLUDE YOUR TESTIMONY

A. Yes, it does.

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CAL-1. Table 1 – Current Replacement Cost (Replacement Cost New)

TABLE 1: CURRENT REPLACEMENT COST

20,000 gpd plant	**Phase 1**	**1987**
100,000 gpd plant	**Phase 2**	**1990**
200,000 gpd expansion (300,000 gpd capacity)	**Phase 3**	**1994**
180,000 gpd expansion (480,000 gpd capacity)	**Phase 4**	**2006**

		Item	Unit	Quantity	2007 Replacement Unit Cost Data	2007 Replacement Total Cost	Year Installed	Replacement Cost Less Depreciation: Design Life (years)	Useful Life Remaining	Total Est. Current Value
WATER COLLECTION SYSTEM	Lift Stations	Lift Station #1 - Picnic Woods/Big Water Dr/Apple Ct - 2 hp	ls	1	$ 25,000	$ 25,000	1989	25	0.28	$ 7,000
		Lift Station #2 - Bright Ridge Pump Station - 5 hp	ls	1	$ 30,000	$ 30,000	1993	25	0.44	$ 13,200
		Lift Station #3 - Pontiac/Carr Rd - 5 hp	ls	1	$ 30,000	$ 30,000	1995	25	0.52	$ 15,600
		Lift Station #4 - Lamplight/Picnic Wood Sec 10 - 2 hp	ls	1	$ 25,000	$ 25,000	1996	25	0.56	$ 14,000
		Lift Station #5 - Provident Development Downtown to American State Bank - 2	ls	1	$ 25,000	$ 25,000	1997	25	0.60	$ 15,000
		Lift Station #6 - Timber Ridge/Redwood Dr/Heartland Heights/Salt Ford Rd - 5	ls	1	$ 30,000	$ 30,000	1998	25	0.64	$ 19,200
		Lift Station #7 - Seldom Seen III/Hunters Crossing/Sandstone Dr - 5 hp	ls	1	$ 30,000	$ 30,000	1999	25	0.68	$ 20,400
		Lift Station #8 - Southpoint Condo's - 5 hp	ls	1	$ 30,000	$ 30,000	2000	25	0.72	$ 21,600
		Lift Station #9 - Old Orchard/Apple Blossom - 40 hp	ls	1	$ 100,000	$ 100,000	2002	25	0.80	$ 80,000
		Lift Station #10 - Brookstone - 20 hp	ls	1	$ 80,000	$ 80,000	2002	25	0.80	$ 64,000
		Lift Station #11 - Brookstone - 2 hp	ls	1	$ 25,000	$ 25,000	2002	25	0.80	$ 20,000
		Lift Station #12 - Saltfork to Brightwood Dr - 7 hp	ls	1	$ 45,000	$ 45,000	2002	25	0.80	$ 36,000
		Lift Station #13 - Park Place - 7 hp	ls	1	$ 45,000	$ 45,000	2003	25	0.84	$ 37,800
		Lift Station #14 - Ingham Mills/Hekk Dev - 5 hp	ls	1	$ 30,000	$ 30,000	2003	25	0.84	$ 25,200
		Lift Station #15 - Jamison Place Condo - 3 hp	ls	1	$ 25,000	$ 25,000	2005	25	0.92	$ 23,000
	Gravity Sewer	4" pipe								
		timber ridge/redwood dr/heartland heights/salt ford rd	lf	2,900	$ 25.00	$ 72,500	1998	50	0.82	$ 59,450
		8" pipe (average 7' depth)								
		picnic woods dr, jamison dr to picnic woods dr, main to plant	lf	7,023	$ 50.00	$ 351,150	1987	50	0.60	$ 210,690
		picnic woods/renck ct/siefferman ct	lf	1,420	$ 50.00	$ 71,000	1988	50	0.62	$ 44,020
		picnic woods/big water dr/apple ct	lf	7,964	$ 50.00	$ 398,200	1989	50	0.64	$ 254,848
		picnic woods/gabbard/gibson/vineyard	lf	3,670	$ 50.00	$ 183,500	1990	50	0.66	$ 121,110
		cedar ridge	lf	906	$ 50.00	$ 45,300	1991	50	0.68	$ 30,804
		picnic woods/judd/strother	lf	5,555	$ 50.00	$ 277,750	1992	50	0.70	$ 194,425
		bright ridge	lf	7,669	$ 50.00	$ 383,450	1993	50	0.72	$ 276,084
		lela	lf	3,260	$ 50.00	$ 163,000	1993	50	0.72	$ 117,360
		seldom seen and brightwood	lf	8,760	$ 50.00	$ 438,000	1994	50	0.74	$ 324,120
		pontiac/carr rd	lf	2,707	$ 50.00	$ 135,350	1995	50	0.76	$ 102,866
		lamplight/picnic wood sec 10	lf	1,450	$ 50.00	$ 72,500	1996	50	0.78	$ 56,550
		christian church/bright vet	lf	1,415	$ 50.00	$ 70,750	1996	50	0.78	$ 55,185
		picnic woods sec 10	lf	2,285	$ 50.00	$ 114,250	1997	50	0.80	$ 91,400
		provident development downtown bright to american state bank	lf	1,066	$ 50.00	$ 53,300	1997	50	0.80	$ 42,640
		bright business center	lf	1,865	$ 50.00	$ 93,250	1997	50	0.80	$ 74,600
		timber ridge/redwood dr/heartland heights/salt ford rd	lf	2,975	$ 50.00	$ 148,750	1998	50	0.82	$ 121,975
		seldom seen III/hunters crossing/sandstone dr	lf	2,061	$ 50.00	$ 103,050	1999	50	0.84	$ 86,562
		southpoint condos	lf	2,950	$ 50.00	$ 147,500	2000	50	0.86	$ 126,850
		grote/trading post	lf	220	$ 50.00	$ 11,000	2000	50	0.86	$ 9,460
		trade line	lf	750	$ 50.00	$ 37,500	2000	50	0.86	$ 32,250
		old orchard/apple blossom	lf	11,720	$ 50.00	$ 586,000	2002	50	0.90	$ 527,400
		brookstone	lf	9,980	$ 50.00	$ 499,000	2002	50	0.90	$ 449,100
		dawn paul dr/grubbs 3	lf	1,000	$ 50.00	$ 50,000	2002	50	0.90	$ 45,000
		saltfork to brightwood dr	lf	2,181	$ 50.00	$ 109,050	2002	50	0.90	$ 98,145
		park place	lf	6,278	$ 50.00	$ 313,900	2003	50	0.92	$ 288,788
		ingham mills/hekk dev	lf	20	$ 50.00	$ 1,000	2003	50	0.92	$ 920
		jamison place condo	lf	2,200	$ 50.00	$ 110,000	2005	50	0.96	$ 105,600
	Manholes	picnic woods dr, jamison dr to picnic woods dr, main to plant	ea	20	$ 2,000.00	$ 40,000	1987	50	0.60	$ 24,000
		picnic woods/renck ct/siefferman ct	ea	4	$ 2,000.00	$ 8,000	1988	50	0.62	$ 4,960
		picnic woods/big water dr/apple ct	ea	20	$ 2,000.00	$ 40,000	1989	50	0.64	$ 25,600
		picnic woods/gabbard/gibson/vineyard	ea	7	$ 2,000.00	$ 14,000	1990	50	0.66	$ 9,240
		cedar ridge	ea	3	$ 2,000.00	$ 6,000	1991	50	0.68	$ 4,080
		seldom seen and brightwood	ea	23	$ 2,000.00	$ 46,000	1994	50	0.74	$ 34,040
		pontiac/carr rd	ea	7	$ 2,000.00	$ 14,000	1995	50	0.76	$ 10,640
		lamplight/picnic wood sec 10	ea	12	$ 2,000.00	$ 24,000	1996	50	0.78	$ 18,720
		christian church/bright vet	ea	7	$ 2,000.00	$ 14,000	1996	50	0.78	$ 10,920
		provident development downtown bright to american state bank	ea	7	$ 2,000.00	$ 14,000	1997	50	0.80	$ 11,200
		bright business center	ea	20	$ 2,000.00	$ 40,000	1997	50	0.80	$ 32,000

TABLE 1: CURRENT REPLACEMENT COST

20,000 gpd plant	**Phase 1**	**1987**
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200,000 gpd expansion (300,000 gpd capacity)	**Phase 3**	**1994**
180,000 gpd expansion (480,000 gpd capacity)	**Phase 4**	**2006**

		Item	Unit	Quantity	2007 Replacement Unit Cost Data	2007 Replacement Total Cost	Year Installed	Replacement Cost Less Depreciation: Design Life (years)	Useful Life Remaining	Total Est. Current Value
WASTEW	Mai	seldom seen III/hunters crossing/sandstone dr	ea	7	$ 2,000.00	$ 14,000	1999	50	0.84	$ 11,760
		southpoint condos	ea	7	$ 2,000.00	$ 14,000	2000	50	0.86	$ 12,040
		grote/trading post	ea	3	$ 2,000.00	$ 6,000	2000	50	0.86	$ 5,160
		trade line	ea	2	$ 2,000.00	$ 4,000	2000	50	0.86	$ 3,440
		old orchard/apple blossom	ea	36	$ 2,000.00	$ 72,000	2002	50	0.90	$ 64,800
		brookstone	ea	23	$ 2,000.00	$ 46,000	2002	50	0.90	$ 41,400
		dawn paul dr/grubbs 3	ea	4	$ 2,000.00	$ 8,000	2002	50	0.90	$ 7,200
		saltfork to brightwood dr	ea	7	$ 2,000.00	$ 14,000	2002	50	0.90	$ 12,600
		park place	ea	20	$ 2,000.00	$ 40,000	2003	50	0.92	$ 36,800
		jamison place condo	ea	7	$ 2,000.00	$ 14,000	2005	50	0.96	$ 13,440
	Force Mains	1.5" force main								
		lamplight/picnic wood sec 10	lf	1,500	$ 15.00	$ 22,500	1996	50	0.78	$ 17,550
		2" force main								
		mt meadows	lf	1,720	$ 15.00	$ 25,800	1993	50	0.72	$ 18,576
		pontiac/carr rd	lf	1,640	$ 15.00	$ 24,600	1995	50	0.76	$ 18,696
		brightwood/maple ridge/oak ridge/walnut grove	lf	770	$ 15.00	$ 11,550	1995	50	0.76	$ 8,778
		timber ridge/redwood dr/heartland heights/salt ford rd	lf	650	$ 15.00	$ 9,750	1998	50	0.82	$ 7,995
		seldom seen III/hunters crossing/sandstone dr	lf	2,950	$ 15.00	$ 44,250	1999	50	0.84	$ 37,170
		southpoint condos	lf	1,350	$ 15.00	$ 20,250	2000	50	0.86	$ 17,415
		brookstone	lf	780	$ 15.00	$ 11,700	2002	50	0.90	$ 10,530
		banberry	lf	360	$ 15.00	$ 5,400	2002	50	0.90	$ 4,860
		park place	lf	1,180	$ 15.00	$ 17,700	2003	50	0.92	$ 16,284
		jenny lynne	lf	2,860	$ 15.00	$ 42,900	2003	50	0.92	$ 39,468
		ingham mills/hekk dev	lf	370	$ 15.00	$ 5,550	2003	50	0.92	$ 5,106
		hawley heights dr	lf	1,022	$ 15.00	$ 15,330	2003	50	0.92	$ 14,104
		rodeo's restaurant	lf	1,200	$ 15.00	$ 18,000	2004	50	0.94	$ 16,920
		bunkum dr	lf	1,431	$ 15.00	$ 21,465	2005	50	0.96	$ 20,606
		jamison place condo	lf	675	$ 15.00	$ 10,125	2005	50	0.96	$ 9,720
		2.5" force main								
		brightwood/maple ridge/oak ridge/walnut grove	lf	3,395	$ 15.00	$ 50,925	1995	50	0.76	$ 38,703
		3" force main								
		DHMC force main	lf	8,336	$ 20.00	$ 166,720	1991	50	0.68	$ 113,370
		bright ridge	lf	4,986	$ 20.00	$ 99,720	1993	50	0.72	$ 71,798
		seldom seen and brightwood	lf	8,760	$ 20.00	$ 175,200	1994	50	0.74	$ 129,648
		brightwood/maple ridge/oak ridge/walnut grove	lf	650	$ 20.00	$ 13,000	1995	50	0.76	$ 9,880
		timber ridge/redwood dr/heartland heights/salt ford rd	lf	2,550	$ 20.00	$ 51,000	1998	50	0.82	$ 41,820
		park place	lf	2,475	$ 20.00	$ 49,500	2003	50	0.92	$ 45,540
		4" force main								
		mt meadows	lf	2,480	$ 25.00	$ 62,000	1993	50	0.72	$ 44,640
		seldom seen and brightwood	lf	8,760	$ 25.00	$ 219,000	1994	50	0.74	$ 162,060
		timber ridge/redwood dr/heartland heights/salt ford rd	lf	4,850	$ 25.00	$ 121,250	1998	50	0.82	$ 99,425
		cumberland dr	lf	2,712	$ 25.00	$ 67,800	2000	50	0.86	$ 58,308
		saltfork to brightwood dr	lf	1,254	$ 25.00	$ 31,350	2002	50	0.90	$ 28,215
		6" force main								
		old orchard/apple blossom	lf	4,540	$ 35.00	$ 158,900	2002	50	0.90	$ 143,010
		brookstone	lf	4,100	$ 35.00	$ 143,500	2002	50	0.90	$ 129,150
		SUB-TOTAL COLLECTION SYSTEM				**$ 7,823,735**				**$ 6,133,587**
		1987 WWTP - 20,000 gpd Capacity (see attached worksheet)	LS	1	$ 240,000	$ 240,000	1987	20	0.00	$ -
		Main Lab & Blower Building (Approximately 50' x 30')		1	$ 225,000	$ 225,000	1994	20	0.35	$ 78,750
		Headworks								
		Raw Sewage Pump Station (includes wet well/valve pit/pumps/rails/controls		1	$ 225,000	$ 225,000	2006	20	0.95	$ 213,750
		Building		1	$ 10,000	$ 10,000	1994	20	0.35	$ 3,500
		Screening								
		Mechanically Cleaned Bar Screens		1	$ 100,000	$ 100,000	2006	20	0.95	$ 95,000
		Manual Bar Screen		1	$ 40,000	$ 40,000	1994	20	0.35	$ 14,000

TABLE 1: CURRENT REPLACEMENT COST

20,000 gpd plant — **Phase 1** **1987**
100,000 gpd plant — **Phase 2** **1990**
200,000 gpd expansion (300,000 gpd capacity) — **Phase 3** **1994**
180,000 gpd expansion (480,000 gpd capacity) — **Phase 4** **2006**

	Item	Unit	Quantity	2007 Replacement Unit Cost Data	2007 Replacement Total Cost	Year Installed	Replacement Cost Less Depreciation: Design Life (years)	Useful Life Remaining	Total Est. Current Value
WASTEWATER TREATMENT PLANT	Building		1	$ 5,000	$ 5,000	1994	20	0.35	$ 1,750
	Processing (Sequential Batch Reactors: SBR's)								
	Controls		1	$ 100,000	$ 100,000	2006	20	0.95	$ 95,000
	Flow Splitter Box		1	$ 5,000	$ 5,000	1994	20	0.35	$ 1,750
	Actuated Flow Control Valves		1	$ 100,000	$ 100,000	2006	20	0.95	$ 95,000
	Tanks								
	Two (2) @ 57 ft long x 24 ft wide x 16.5 ft high (inside dim.)		1	$ 224,500	$ 224,500	1994	20	0.35	$ 78,575
	Two (2) @ 57 ft long x 24 ft wide x 16.5 ft high (inside dim.)		1	$ 224,500	$ 224,500	2006	20	0.95	$ 213,275
	Blowers		1	$ 150,000	$ 150,000	1994	20	0.35	$ 52,500
	Diffusers								
			1	$ 86,000	$ 86,000	1994	20	0.35	$ 30,100
			1	$ 86,000	$ 86,000	2006	20	0.95	$ 81,700
	Decanters								
			1	$ 50,000	$ 50,000	1994	20	0.35	$ 17,500
			1	$ 50,000	$ 50,000	2006	20	0.95	$ 47,500
	Stainless Steel Air Piping								
			1	$ 40,000	$ 40,000	1994	20	0.35	$ 14,000
			1	$ 40,000	$ 40,000	2006	20	0.95	$ 38,000
	Sludge Pumps & Controls								
			1	$ 25,000	$ 25,000	1994	20	0.35	$ 8,750
			1	$ 25,000	$ 25,000	2006	20	0.95	$ 23,750
	RAS/WAS Flow Splitter Boxes								
			1	$ 5,000	$ 5,000	1994	20	0.35	$ 1,750
			1	$ 5,000	$ 5,000	2006	20	0.95	$ 4,750
	Disinfection (Chlorination/Dechlorination)								
	Tank 1 (One (1) @ 20 ft long x 21.5 ft wide x 10.5 ft high (inside dim.))		1	$ 36,153	$ 36,153	1990	20	0.15	$ 5,423
	Tank 2 (One (1) @ 30 ft long x 30 ft wide x 8 ft high (inside dim.))		1	$ 51,667	$ 51,667	1990	20	0.15	$ 7,750
	Building Over Tank 2 (30 feet x 30 feet)		1	$ 112,500	$ 112,500	1990	20	0.15	$ 16,875
	Chlor/Dechlor Equipment		1	$ 50,000	$ 50,000	2006	20	0.95	$ 47,500
	Effluent Pumps & Controls		1	$ 25,000	$ 25,000	1994	20	0.35	$ 8,750
	Post Aeration (Cascade Aeration)		1	$ 10,000	$ 10,000	1994	20	0.35	$ 3,500
	Flow Metering		1	$ 15,000	$ 15,000	2006	20	0.95	$ 14,250
	Sludge Processing								
	Aerobic Digesters								
	Tanks (Two (2) @ 39 ft long x 13 ft wide x 16.5 ft high (inside dim.))		1	$ 123,500	$ 123,500	1990	20	0.15	$ 18,525
	Blowers		1	$ 30,000	$ 30,000	1990	20	0.15	$ 4,500
	Blowers		1	$ 75,000	$ 75,000	1994	20	0.35	$ 26,250
	Diffusers		1	$ 80,000	$ 80,000	1994	20	0.35	$ 28,000
	Stainless Steel Air Piping		1	$ 20,000	$ 20,000	1994	20	0.35	$ 7,000
	Sludge Transfer Pumps & Controls		1	$ 25,000	$ 25,000	1994	20	0.35	$ 8,750
	Belt Filter Press w/sump & Controls		1	$ 150,000	$ 150,000	2002	20	0.75	$ 112,500
	Belt Filter Press Sludge Pump & Controls		1	$ 20,000	$ 20,000	2002	20	0.75	$ 15,000
	Sludge Conveyor & Controls		1	$ 25,000	$ 25,000	2002	20	0.75	$ 18,750
	Roll-Off Container		1	$ 2,500	$ 2,500	2002	20	0.75	$ 1,875
	Building		1	$ 10,000	$ 10,000	2002	20	0.75	$ 7,500
	Non-Potable Water System		1	$ 5,000	$ 5,000	1994	20	0.35	$ 1,750
	Laboratory Equipment		1	$ 35,000	$ 35,000	2006	20	0.95	$ 33,250
	Site fencing, access drives, and landscaping		1	$ 100,000	$ 100,000	2006	20	0.95	$ 95,000
	Plant Piping		1	$ 100,000	$ 100,000	2006	20	0.95	$ 95,000
	Plant Electrical		1	$ 125,000	$ 125,000	2006	20	0.95	$ 118,750
	Standby Power		1	$ 100,000	$ 100,000	2006	20	0.95	$ 95,000
	SUB-TOTAL WASTEWATER TREATMENT PLANT				**$ 3,387,319**				**$ 2,002,098**
LAND		acres	5	$ 12,000	**$ 60,000**				**$ 60,000**
				TOTAL CURRENT REPLACEMENT COST	**$ 11,271,054**				**$ 8,195,685**

CAL-2. Table 2 – Original Cost (Handy-Whitman Original Cost)

TABLE 2: ORIGINAL COST

Calculation of original cost using the Handy-Whitman Index

20,000 gpd plant	**Phase 1**	**1987**
100,000 gpd plant	**Phase 2**	**1990**
200,000 gpd expansion (300,000 gpd capacity)	**Phase 3**	**1994**
180,000 gpd expansion (480,000 gpd capacity)	**Phase 4**	**2006**

		Item	Unit	Quantity	2007 Replacement Unit Cost Data	2007 Replacement Total Cost	Year Installed	HW Index Year Installed	HW Index 2007	Total Est. Original Cost	Useful Life Remaining	Accumulated Depreciation	Original Cost Net of Depr
WASTEWATER COLLECTION SYSTEM	Lift Stations	Lift Station #1 - Picnic Woods/Big Water Dr/Apple Ct - 2 hp	ls	1	$ 25,000	$ 25,000	1989	296	557	$ 13,275	0.28	$ 9,558	$ 3,717
		Lift Station #2 - Bright Ridge Pump Station - 5 hp	ls	1	$ 30,000	$ 30,000	1993	334	557	$ 17,978	0.44	10,068	7,911
		Lift Station #3 - Pontiac/Carr Rd - 5 hp	ls	1	$ 30,000	$ 30,000	1995	374	557	$ 20,135	0.52	9,665	10,470
		Lift Station #4 - Lamplight/Picnic Wood Sec 10 - 2 hp	ls	1	$ 25,000	$ 25,000	1996	381	557	$ 17,116	0.56	7,531	9,585
		Lift Station #5 - Provident Development Downtown to American State Bank - 2	ls	1	$ 25,000	$ 25,000	1997	396	557	$ 17,790	0.60	7,116	10,674
		Lift Station #6 - Timber Ridge/Redwood Dr/Heartland Heights/Salt Ford Rd - 5	ls	1	$ 30,000	$ 30,000	1998	402	557	$ 21,671	0.64	7,802	13,870
		Lift Station #7 - Seldom Seen III/Hunters Crossing/Sandstone Dr - 5 hp	ls	1	$ 30,000	$ 30,000	1999	415	557	$ 22,345	0.68	7,150	15,195
		Lift Station #8 - Southpoint Condo's - 5 hp	ls	1	$ 30,000	$ 30,000	2000	431	557	$ 23,235	0.72	6,506	16,729
		Lift Station #9 - Old Orchard/Apple Blossom - 40 hp	ls	1	$ 100,000	$ 100,000	2002	444	557	$ 79,784	0.80	15,957	63,827
		Lift Station #10 - Brookstone - 20 hp	ls	1	$ 80,000	$ 80,000	2002	444	557	$ 63,827	0.80	12,765	51,062
		Lift Station #11 - Brookstone - 2 hp	ls	1	$ 25,000	$ 25,000	2002	444	557	$ 19,946	0.80	3,989	15,957
		Lift Station #12 - Saltfork to Brightwood Dr - 7 hp	ls	1	$ 45,000	$ 45,000	2002	444	557	$ 35,903	0.80	7,181	28,722
		Lift Station #13 - Park Place - 7 hp	ls	1	$ 45,000	$ 45,000	2003	462	557	$ 37,358	0.84	5,977	31,381
		Lift Station #14 - Ingham Mills/Hekk Dev - 5 hp	ls	1	$ 30,000	$ 30,000	2003	462	557	$ 24,906	0.84	3,985	20,921
		Lift Station #15 - Jamison Place Condo - 3 hp	ls	1	$ 25,000	$ 25,000	2005	519	557	$ 23,315	0.92	1,865	21,450
	Gravity Sewer	4" pipe											
		timber ridge/redwood dr/heartland heights/salt ford rd	lf	2,900	$ 25.00	$ 72,500	1998	206	357	$ 41,835	0.82	7,530	34,304
		8" pipe (average 7' depth)											
		picnic woods dr, jamison dr to picnic woods dr, main to plant	lf	7,023	$ 50.00	$ 351,150	1987	158	357	$ 155,411	0.60	62,164	93,247
		picnic woods/renck ct/siefferman ct	lf	1,420	$ 50.00	$ 71,000	1988	196	357	$ 38,980	0.62	14,813	24,168
		picnic woods/big water dr/apple ct	lf	7,964	$ 50.00	$ 398,200	1989	213	357	$ 237,582	0.64	85,529	152,052
		picnic woods/gabbard/gibson/vineyard	lf	3,670	$ 50.00	$ 183,500	1990	204	357	$ 104,857	0.66	35,651	69,206
		cedar ridge	lf	906	$ 50.00	$ 45,300	1991	191	357	$ 24,236	0.68	7,756	16,481
		picnic woods/judd/strother	lf	5,555	$ 50.00	$ 277,750	1992	174	357	$ 135,374	0.70	40,612	94,762
		bright ridge	lf	7,669	$ 50.00	$ 383,450	1993	184	357	$ 197,632	0.72	55,337	142,295
		lela	lf	3,260	$ 50.00	$ 163,000	1993	184	357	$ 84,011	0.72	23,523	60,488
		seldom seen and brightwood	lf	8,760	$ 50.00	$ 438,000	1994	182	357	$ 223,294	0.74	58,056	165,238
		pontiac/carr rd	lf	2,707	$ 50.00	$ 135,350	1995	196	357	$ 74,310	0.76	17,834	56,475
		lamplight/picnic wood sec 10	lf	1,450	$ 50.00	$ 72,500	1996	202	357	$ 41,022	0.78	9,025	31,997
		christian church/bright vet	lf	1,415	$ 50.00	$ 70,750	1996	202	357	$ 40,032	0.78	8,807	31,225
		picnic woods sec 10	lf	2,285	$ 50.00	$ 114,250	1997	207	357	$ 66,246	0.80	13,249	52,997
		provident development downtown bright to american state bank	lf	1,066	$ 50.00	$ 53,300	1997	207	357	$ 30,905	0.80	6,181	24,724
		bright business center	lf	1,865	$ 50.00	$ 93,250	1997	207	357	$ 54,069	0.80	10,814	43,255
		timber ridge/redwood dr/heartland heights/salt ford rd	lf	2,975	$ 50.00	$ 148,750	1998	206	357	$ 85,833	0.82	15,450	70,383
		seldom seen III/hunters crossing/sandstone dr	lf	2,061	$ 50.00	$ 103,050	1999	207	357	$ 59,752	0.84	9,560	50,191
		southpoint condos	lf	2,950	$ 50.00	$ 147,500	2000	217	357	$ 89,657	0.86	12,552	77,105
		grote/trading post	lf	220	$ 50.00	$ 11,000	2000	217	357	$ 6,686	0.86	936	5,750
		trade line	lf	750	$ 50.00	$ 37,500	2000	217	357	$ 22,794	0.86	3,191	19,603
		old orchard/apple blossom	lf	11,720	$ 50.00	$ 586,000	2002	237	357	$ 389,025	0.90	38,903	350,123
		brookstone	lf	9,980	$ 50.00	$ 499,000	2002	237	357	$ 331,269	0.90	33,127	298,142
		dawn paul dr/grubbs 3	lf	1,000	$ 50.00	$ 50,000	2002	237	357	$ 33,193	0.90	3,319	29,874
		saltfork to brightwood dr	lf	2,181	$ 50.00	$ 109,050	2002	237	357	$ 72,395	0.90	7,239	65,155
		park place	lf	6,278	$ 50.00	$ 313,900	2003	247	357	$ 217,180	0.92	17,374	199,806
		ingham mills/hekk dev	lf	20	$ 50.00	$ 1,000	2003	247	357	$ 692	0.92	55	637
		jamison place condo	lf	2,200	$ 50.00	$ 110,000	2005	270	357	$ 83,193	0.96	3,328	79,866
	Manholes	picnic woods dr, jamison dr to picnic woods dr, main to plant	ea	20	$ 2,000.00	$ 40,000	1987	158	357	$ 17,703	0.60	7,081	10,622
		picnic woods/renck ct/siefferman ct	ea	4	$ 2,000.00	$ 8,000	1988	196	357	$ 4,392	0.62	1,669	2,723
		picnic woods/big water dr/apple ct	ea	20	$ 2,000.00	$ 40,000	1989	213	357	$ 23,866	0.64	8,592	15,274
		picnic woods/gabbard/gibson/vineyard	ea	7	$ 2,000.00	$ 14,000	1990	204	357	$ 8,000	0.66	2,720	5,280
		cedar ridge	ea	3	$ 2,000.00	$ 6,000	1991	191	357	$ 3,210	0.68	1,027	2,183
		seldom seen and brightwood	ea	23	$ 2,000.00	$ 46,000	1994	182	357	$ 23,451	0.74	6,097	17,354
		pontiac/carr rd	ea	7	$ 2,000.00	$ 14,000	1995	196	357	$ 7,686	0.76	1,845	5,842
		lamplight/picnic wood sec 10	ea	12	$ 2,000.00	$ 24,000	1996	202	357	$ 13,580	0.78	2,988	10,592
		christian church/bright vet	ea	7	$ 2,000.00	$ 14,000	1996	202	357	$ 7,922	0.78	1,743	6,179
		provident development downtown bright to american state bank	ea	7	$ 2,000.00	$ 14,000	1997	207	357	$ 8,118	0.80	1,624	6,494
		bright business center	ea	20	$ 2,000.00	$ 40,000	1997	207	357	$ 23,193	0.80	4,639	18,555
		seldom seen III/hunters crossing/sandstone dr	ea	7	$ 2,000.00	$ 14,000	1999	207	357	$ 8,118	0.84	1,299	6,819
		southpoint condos	ea	7	$ 2,000.00	$ 14,000	2000	217	357	$ 8,510	0.86	1,191	7,318
		grote/trading post	ea	3	$ 2,000.00	$ 6,000	2000	217	357	$ 3,647	0.86	511	3,136
		trade line	ea	2	$ 2,000.00	$ 4,000	2000	217	357	$ 2,431	0.86	340	2,091
		old orchard/apple blossom	ea	36	$ 2,000.00	$ 72,000	2002	237	357	$ 47,798	0.90	4,780	43,018
		brookstone	ea	23	$ 2,000.00	$ 46,000	2002	237	357	$ 30,538	0.90	3,054	27,484
		dawn paul dr/grubbs 3	ea	4	$ 2,000.00	$ 8,000	2002	237	357	$ 5,311	0.90	531	4,780
		saltfork to brightwood dr	ea	7	$ 2,000.00	$ 14,000	2002	237	357	$ 9,294	0.90	929	8,365
		park place	ea	20	$ 2,000.00	$ 40,000	2003	247	357	$ 27,675	0.92	2,214	25,461
		jamison place condo	ea	7	$ 2,000.00	$ 14,000	2005	270	357	$ 10,588	0.96	424	10,165
		1.5" force main											
		lamplight/picnic wood sec 10	lf	1,500	$ 15.00	$ 22,500	1996	202	357	$ 12,731	0.78	2,801	9,930

TABLE 2: ORIGINAL COST

Calculation of original cost using the Handy-Whitman Index

20,000 gpd plant	**Phase 1**	**1987**
100,000 gpd plant	**Phase 2**	**1990**
200,000 gpd expansion (300,000 gpd capacity)	**Phase 3**	**1994**
180,000 gpd expansion (480,000 gpd capacity)	**Phase 4**	**2006**

	Item	Unit	Quantity	2007 Replacement Unit Cost Data	2007 Replacement Total Cost	Year Installed	HW Index Year Installed	HW Index 2007	Total Est. Original Cost	Useful Life Remaining	Accumulated Depreciation	Original Cost Net of Depr
Force Mains	2" force main											
	mt meadows	lf	1,720	$ 15.00	$ 25,800	1993	184	357	$ 13,297	0.72	3,723	9,574
	pontiac/carr rd	lf	1,640	$ 15.00	$ 24,600	1995	196	357	$ 13,506	0.76	3,241	10,264
	brightwood/maple ridge/oak ridge/walnut grove	lf	770	$ 15.00	$ 11,550	1995	196	357	$ 6,341	0.76	1,522	4,819
	timber ridge/redwood dr/heartland heights/salt ford rd	lf	650	$ 15.00	$ 9,750	1998	206	357	$ 5,626	0.82	1,013	4,613
	seldom seen III/hunters crossing/sandstone dr	lf	2,950	$ 15.00	$ 44,250	1999	207	357	$ 25,658	0.84	4,105	21,552
	southpoint condos	lf	1,350	$ 15.00	$ 20,250	2000	217	357	$ 12,309	0.86	1,723	10,586
	brookstone	lf	780	$ 15.00	$ 11,700	2002	237	357	$ 7,767	0.90	777	6,991
	banberry	lf	360	$ 15.00	$ 5,400	2002	237	357	$ 3,585	0.90	358	3,226
	park place	lf	1,180	$ 15.00	$ 17,700	2003	247	357	$ 12,246	0.92	980	11,267
	jenny lynne	lf	2,860	$ 15.00	$ 42,900	2003	247	357	$ 29,682	0.92	2,375	27,307
	ingham mills/hekk dev	lf	370	$ 15.00	$ 5,550	2003	247	357	$ 3,840	0.92	307	3,533
	hawley heights dr	lf	1,022	$ 15.00	$ 15,330	2003	247	357	$ 10,606	0.92	849	9,758
	rodeo's restaurant	lf	1,200	$ 15.00	$ 18,000	2004	250	357	$ 12,605	0.94	756	11,849
	bunkum dr	lf	1,431	$ 15.00	$ 21,465	2005	270	357	$ 16,234	0.96	649	15,585
	jamison place condo	lf	675	$ 15.00	$ 10,125	2005	270	357	$ 7,658	0.96	306	7,351
	2.5" force main											
	brightwood/maple ridge/oak ridge/walnut grove	lf	3,395	$ 15.00	$ 50,925	1995	196	357	$ 27,959	0.76	6,710	21,249
	3" force main											
	DHMC force main	lf	8,336	$ 20.00	$ 166,720	1991	191	357	$ 89,198	0.68	28,543	60,654
	bright ridge	lf	4,986	$ 20.00	$ 99,720	1993	184	357	$ 51,396	0.72	14,391	37,005
	seldom seen and brightwood	lf	8,760	$ 20.00	$ 175,200	1994	182	357	$ 89,318	0.74	23,223	66,095
	brightwood/maple ridge/oak ridge/walnut grove	lf	650	$ 20.00	$ 13,000	1995	196	357	$ 7,137	0.76	1,713	5,424
	timber ridge/redwood dr/heartland heights/salt ford rd	lf	2,550	$ 20.00	$ 51,000	1998	206	357	$ 29,429	0.82	5,297	24,131
	park place	lf	2,475	$ 20.00	$ 49,500	2003	247	357	$ 34,248	0.92	2,740	31,508
	4" force main											
	mt meadows	lf	2,480	$ 25.00	$ 62,000	1993	184	357	$ 31,955	0.72	8,947	23,008
	seldom seen and brightwood	lf	8,760	$ 25.00	$ 219,000	1994	182	357	$ 111,647	0.74	29,028	82,619
	timber ridge/redwood dr/heartland heights/salt ford rd	lf	4,850	$ 25.00	$ 121,250	1998	206	357	$ 69,965	0.82	12,594	57,371
	cumberland dr	lf	2,712	$ 25.00	$ 67,800	2000	217	357	$ 41,212	0.86	5,770	35,442
	saltfork to brightwood dr	lf	1,254	$ 25.00	$ 31,350	2002	237	357	$ 20,812	0.90	2,081	18,731
	6" force main											
	old orchard/apple blossom	lf	4,540	$ 35.00	$ 158,900	2002	237	357	$ 105,488	0.90	10,549	94,939
	brookstone	lf	4,100	$ 35.00	$ 143,500	2002	237	357	$ 95,265	0.90	9,526	85,738
	SUB-TOTAL COLLECTION SYSTEM				**$ 7,823,735**				**$ 4,673,801**		**$ 960,927**	**$ 3,712,874**
R TREATMENT PLANT	1987 WWTP - 20,000 gpd Capacity (see attached worksheet)	LS	1	$ 240,000	$ 240,000	1987	257	486	$ 126,797	0.00	126,797	0
	Main Lab & Blower Building (Approximately 50' x 30')		1	$ 225,000	$ 225,000	1994	295	474	$ 140,032	0.35	91,021	49,011
	Headworks											
	Raw Sewage Pump Station (includes wet well/valve pit/pumps/rails/controls		1	$ 225,000	$ 225,000	2006	482	497	$ 218,209	0.95	10,910	207,299
	Building		1	$ 10,000	$ 10,000	1994	295	474	$ 6,224	0.35	4,045	2,178
	Screening											
	Mechanically Cleaned Bar Screens		1	$ 100,000	$ 100,000	2006	482	497	$ 96,982	0.95	4,849	92,133
	Manual Bar Screen		1	$ 40,000	$ 40,000	1994	328	497	$ 26,398	0.35	17,159	9,239
	Building		1	$ 5,000	$ 5,000	1994	295	474	$ 3,112	0.35	2,023	1,089
	Processing (Sequential Batch Reactors: SBR's)											
	Controls		1	$ 100,000	$ 100,000	2006	482	497	$ 96,982	0.95	4,849	92,133
	Flow Splitter Box		1	$ 5,000	$ 5,000	1994	328	497	$ 3,300	0.35	2,145	1,155
	Actuated Flow Control Valves		1	$ 100,000	$ 100,000	2006	482	497	$ 96,982	0.95	4,849	92,133
	Tanks											
	Two (2) @ 57 ft long x 24 ft wide x 16.5 ft high (inside dim.)		1	$ 224,500	$ 224,500	1994	295	474	$ 139,720	0.35	90,818	48,902
	Two (2) @ 57 ft long x 24 ft wide x 16.5 ft high (inside dim.)		1	$ 224,500	$ 224,500	2006	450	474	$ 213,133	0.95	10,657	202,476
	Blowers		1	$ 150,000	$ 150,000	1994	328	497	$ 98,994	0.35	64,346	34,648
	Diffusers											
			1	$ 86,000	$ 86,000	1994	328	497	$ 56,757	0.35	36,892	19,865
			1	$ 86,000	$ 86,000	2006	482	497	$ 83,404	0.95	4,170	79,234
	Decanters											
			1	$ 50,000	$ 50,000	1994	328	497	$ 32,998	0.35	21,449	11,549
			1	$ 50,000	$ 50,000	2006	482	497	$ 48,491	0.95	2,425	46,066
	Stainless Steel Air Piping											
			1	$ 40,000	$ 40,000	1994	328	497	$ 26,398	0.35	17,159	9,239
			1	$ 40,000	$ 40,000	2006	482	497	$ 38,793	0.95	1,940	36,853
	Sludge Pumps & Controls											
			1	$ 25,000	$ 25,000	1994	328	497	$ 16,499	0.35	10,724	5,775
			1	$ 25,000	$ 25,000	2006	482	497	$ 24,245	0.95	1,212	23,033
	RAS/WAS Flow Splitter Boxes											
			1	$ 5,000	$ 5,000	1994	328	497	$ 3,300	0.35	2,145	1,155
			1	$ 5,000	$ 5,000	2006	482	497	$ 4,849	0.95	242	4,607

TABLE 2: ORIGINAL COST

Calculation of original cost using the Handy-Whitman Index

20,000 gpd plant	**Phase 1**	**1987**
100,000 gpd plant	**Phase 2**	**1990**
200,000 gpd expansion (300,000 gpd capacity)	**Phase 3**	**1994**
180,000 gpd expansion (480,000 gpd capacity)	**Phase 4**	**2006**

	Item	Unit	Quantity	2007 Replacement Unit Cost Data	2007 Replacement Total Cost	Year Installed	HW Index Year Installed	HW Index 2007	Total Est. Original Cost	Useful Life Remaining	Accumulated Depreciation	Original Cost Net of Depr
WASTEWATE	Disinfection (Chlorination/Dechlorination)											
	Tank 1 (One (1) @ 20 ft long x 21.5 ft wide x 10.5 ft high (inside dim.))		1	$ 36,153	$ 36,153	1990	264	474	$ 20,136	0.15	17,115	3,020
	Tank 2 (One (1) @ 30 ft long x 30 ft wide x 8 ft high (inside dim.))		1	$ 51,667	$ 51,667	1990	264	474	$ 28,776	0.15	24,460	4,316
	Building Over Tank 2 (30 feet x 30 feet)		1	$ 112,500	$ 112,500	1990	264	474	$ 62,658	0.15	53,259	9,399
	Chlor/Dechlor Equipment		1	$ 50,000	$ 50,000	2006	482	497	$ 48,491	0.95	2,425	46,066
	Effluent Pumps & Controls		1	$ 25,000	$ 25,000	1994	328	497	$ 16,499	0.35	10,724	5,775
	Post Aeration (Cascade Aeration)		1	$ 10,000	$ 10,000	1994	328	497	$ 6,600	0.35	4,290	2,310
	Flow Metering		1	$ 15,000	$ 15,000	2006	482	497	$ 14,547	0.95	727	13,820
	Sludge Processing											
	Aerobic Digesters											
	Tanks (Two (2) @ 39 ft long x 13 ft wide x 16.5 ft high (inside dim.))		1	$ 123,500	$ 123,500	1990	264	474	$ 68,785	0.15	58,467	10,318
	Blowers		1	$ 30,000	$ 30,000	1990	299	497	$ 18,048	0.15	15,341	2,707
	Blowers		1	$ 75,000	$ 75,000	1994	328	497	$ 49,497	0.35	32,173	17,324
	Diffusers		1	$ 80,000	$ 80,000	1994	328	497	$ 52,797	0.35	34,318	18,479
	Stainless Steel Air Piping		1	$ 20,000	$ 20,000	1994	328	497	$ 13,199	0.35	8,579	4,620
	Sludge Transfer Pumps & Controls		1	$ 25,000	$ 25,000	1994	328	497	$ 16,499	0.35	10,724	5,775
	Belt Filter Press w/sump & Controls		1	$ 150,000	$ 150,000	2002	414	497	$ 124,950	0.75	31,237	93,712
	Belt Filter Press Sludge Pump & Controls		1	$ 20,000	$ 20,000	2002	414	497	$ 16,660	0.75	4,165	12,495
	Sludge Conveyor & Controls		1	$ 25,000	$ 25,000	2002	414	497	$ 20,825	0.75	5,206	15,619
	Roll-Off Container		1	$ 2,500	$ 2,500	2002	414	497	$ 2,082	0.75	521	1,562
	Building		1	$ 10,000	$ 10,000	2002	372	474	$ 7,848	0.75	1,962	5,886
	Non-Potable Water System		1	$ 5,000	$ 5,000	1994	328	497	$ 3,300	0.35	2,145	1,155
	Laboratory Equipment		1	$ 35,000	$ 35,000	2006	482	497	$ 33,944	0.95	1,697	32,246
	Site fencing, access drives, and landscaping		1	$ 100,000	$ 100,000	2006	450	474	$ 94,937	0.95	4,747	90,190
	Plant Piping		1	$ 100,000	$ 100,000	2006	482	497	$ 96,982	0.95	4,849	92,133
	Plant Electrical		1	$ 125,000	$ 125,000	2006	482	497	$ 121,227	0.95	6,061	115,166
	Standby Power		1	$ 100,000	$ 100,000	2006	482	497	$ 96,982	0.95	4,849	92,133
	SUB-TOTAL WASTEWATER TREATMENT PLANT				**$ 3,387,319**				**$ 2,638,868**		**$ 872,869**	**$ 1,765,998**
LAND		acres	5	$ 12,000	**$ 60,000**				**$ 60,000**			$ 60,000
				TOTAL ORIGINAL COST	$ 11,271,054				$ 7,372,669		$ 1,833,797	$ 5,538,873

CAL-3. Table 3 – WWTP Replacement Cost Using Current Low Bid Cost Information

TABLE 3: WWTP REPLACEMENT COSTS USING CURRENT LOW BID COST INFORMATION
(Wastewater Treatment Plant Only - No Collection System)

Cross check of estimate using actual cost per gallon information.

20,000 gpd plant	**Phase 1**	**1987**
100,000 gpd plant	**Phase 2**	**1990**
200,000 gpd expansion (300,000 gpd capacity)	**Phase 3**	**1994**
180,000 gpd expansion (480,000 gpd capacity)	**Phase 4**	**2006**

	Item	Unit	Quantity	2007 Replacement Unit Cost Data	2007 Replacement Total Cost	Year Installed	Replacement Cost Less Depreciation: Design Life (years)	Useful Life Remaining	Total Est. Current Value
WASTEWTER TREATMENT PLANT	1987 WWTP - 20,000 gpd Capacity - New Package Type Plant	LS	1	$ 500,000	$ 500,000	1987	20	0.00	$ -
	1990 WWTP Expansion - 100,000 gpd Capacity - New SBR Plant	LS	1	$ 1,300,000	$ 1,300,000	1990	20	0.15	$ 195,000
	1994 WWTP Expansion - 300,000 gpd Capacity (200,000 gpd increase)	LS	1	$ 1,720,000	$ 1,720,000	1994	20	0.35	$ 602,000
	2006 WWTP Expansion - 480,000 gpd Capacity (180,000 gpd increase)	LS	1	$ 1,548,000	$ 1,548,000	2006	20	0.95	$ 1,470,600
	Sub-Total WWTP Cost - Method 2				**$ 5,068,000**				**$ 2,267,600**

Refer to Table 4 and Figures 1 and 2 for unit cost determinations.

CAL-4. Table 4 – Actual WWTP Construction Costs in Indiana

TABLE 4
Actual Wastewater Treatment Plant Construction Costs in Indiana

	New Plants	Low Bid	Design Flow (MGD)	Unit Cost $/gal	NPDES Permit #	County
1	**Extended Air**					
	Ossian	$ 3,155,000	0.6000	$5.26	IN0020745	Wells
	Twin Lakes RSD	$ 4,284,000	0.3700	$11.58	IN0062367	White
2	**Oxidation Ditch**					
	Milford	$ 2,100,000	0.2500	$8.40	IN0038318	Kosciusko
4	**Package Plant**					
	Western School Corp.	$ 1,290,000	0.0498	$25.90	IN0031801	Howard
5	**Biolac**					
	Taylor Township RSD	$ 1,553,000	0.1750	$8.87	IN0062375	Howard
6	**Recirculating Media Filter**					
	Sandborn	$ 662,500	0.0660	$10.04	IN0062685	Knox

	Plant Expansions	Low Bid	Flow Increase (MGD)	Unit Cost $/gal	NPDES Permit #	County
1	**Extended Air**					
	Sullivan	$ 4,690,000	0.9800	$4.79	IN0024554	Sullivan
	Lapel	$ 1,814,000	0.3600	$5.04	IN0020087	Madison
	Pierceton	$ 1,833,000	0.4000	$4.58	IN0020541	Kosciusko
	Noblesville (will bid on Oct. 9)	$ 20,000,000	5.0000	$4.00	IN0020168	Hamilton
2	**Oxidation Ditch**					
	Danville	$ 4,656,000	0.8500	$5.48	IN0020079	Hendricks
	Liberty	$ 4,837,000	0.4300	$11.25	IN0020681	Union
	Clay City	$ 2,365,000	0.2420	$9.77	IN0039861	Clay
3	**SBR**					
	Spencer	$ 3,698,000	0.4660	$7.94	IN0020192	Owen
	Avon West Cent Cons. Dist.	$ 7,518,000	2.6000	$2.89	IN0051632	Hendricks
	Washington	$ 5,995,000	1.9000	$3.16	IN0025658	Daviess

All costs were taken from actual project bid tabs 2005 to 2007
Costs do NOT include Engineering
Costs do NOT included Change Orders
All flow data was taken from the EPA NPDES database

CAL-5. Table 5 – Summary of Treatment Plant Results

TABLE 5

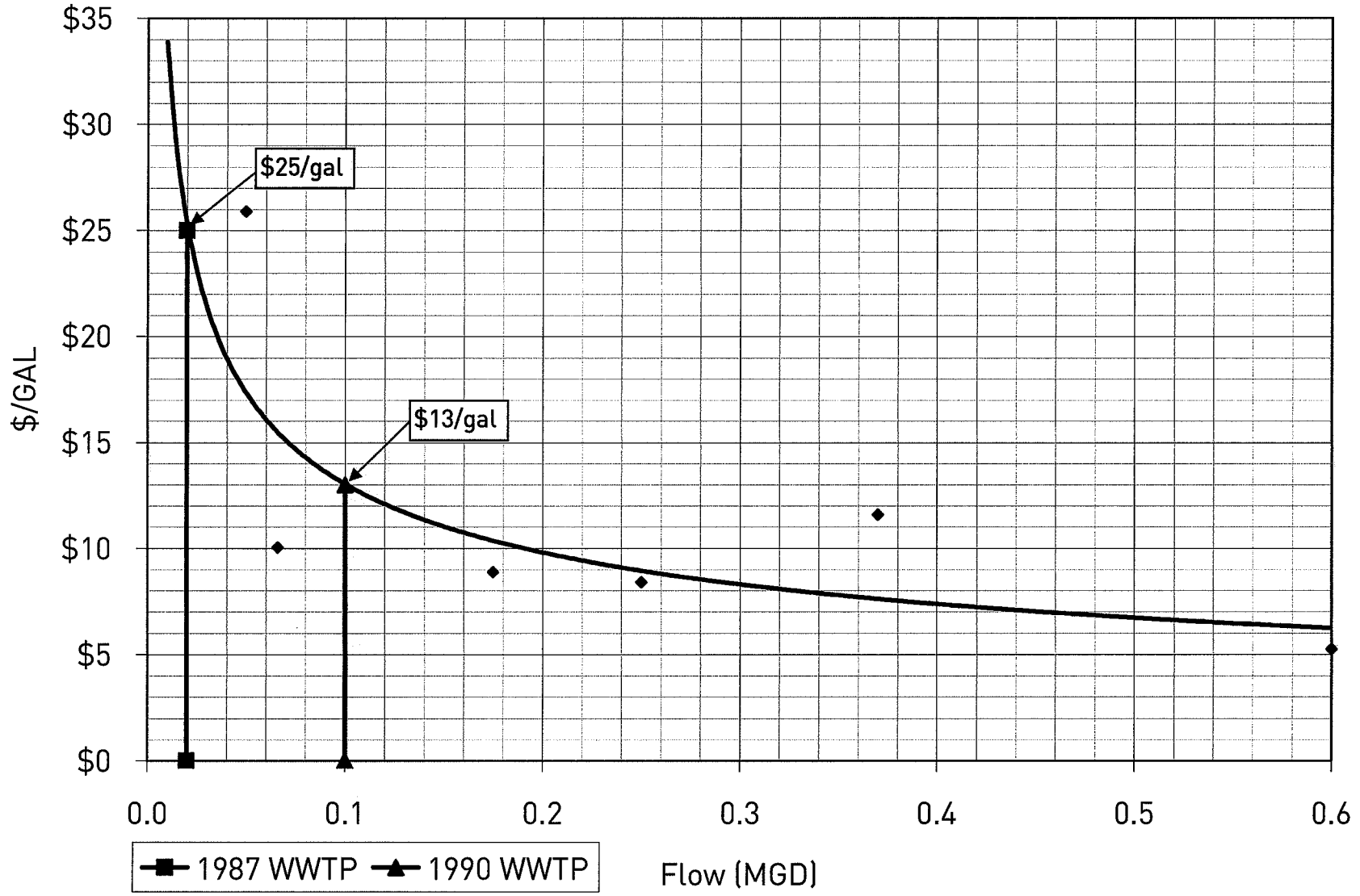
Summary of Treatment Plant Results

	Method 1 Current Replacement Cost **Table 1**	Method 2 Handy-Whitman Index **Table 2**	Method 3 Low Bid Cost Check **Table 3**
2007 Replacement Cost	$3,387,319	$3,387,319	$5,068,000
Total Estimated Current Value or Original Cost Net of Depreciation	$2,002,098	$1,765,998	$2,267,600

CAL-6. Figure 1 – New WWTP Construction Costs in Indiana

FIGURE 1

New WWTP Construction Costs in Indiana



CAL-7. Figure 2 – WWTP Expansion Construction Costs in Indiana

FIGURE 2

WWTP Expansion Construction Costs in Indiana